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Flying Operations

***CENTRIFUGE TRAINING FOR HIGH-G
AIRCREW***

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements AFD 11-4, *Flying Operations, Aviation Service*. AF/SGO OPR and waiver authority for this instruction is AFMSA/SGPA (Chief, Aerospace Physiology). It provides guidance and procedures for the Centrifuge Training of aircrew who are either currently flying or are selected to fly sustained high-G aircraft (SHGA). It describes the initial, qualification, and refresher centrifuge training requirements, as well as guidance and procedures for the handling of aircrew that do not satisfactorily complete this training program. It details the documentation of aircrew centrifuge training. It establishes the required minimum crew and their qualifications for conducting centrifuge training operations. AFPAM 11-419, *G-Awareness for Aircrew*, provides comprehensive information on the physiology of G-awareness. The reporting requirement in this volume are exempt from licensing according to AFI 33-324, paragraph 2.11.10, *The Information Collections and Reports Management Program; Controlling Internal, Public, and Interagency Air Force Information Collections*.

The Privacy Act of 1974 affects this instruction. The authority of 10 U.S.C. 133 and 8013 allows the collection and maintenance of this information. Forms required by this instruction and affected by the Privacy Act have appropriate Privacy Act Statements. Privacy Act System of Records Notice F161 AF SG A, Air Force Aerospace Physiology Training Programs, applies. The use of a name of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

This interim change incorporates new guidelines which address changes to centrifuge training, changing the number of profiles for Initial Acceleration Training from five to four and mandates successful completion of all profiles. It eliminates F-15E and A-10 aircrew refresher centrifuge requirements and A-10 qualification requirements for FTU entry. In addition, Chapter 3, which establishes requirements for centrifuge training for pilots enrolled in T-6 and T-38 PIT courses, is deleted. A margin bar (|) indicates newly revised material.

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Chapter 1

INTRODUCTION

1.1. Purpose and Need for Centrifuge Training. The high-G aircraft operated by today's aircrew are easily capable of causing G-induced loss of consciousness (GLOC). Optimum physical conditioning, appropriate functioning of anti-G equipment, and adequate G-oriented situational awareness are all important to aircrew G-tolerance; however, an effective anti-G straining maneuver (AGSM) is the aircrew's most significant weapon against the potentially incapacitating effects of G, adding an average of 3.5 G to aircrew resting G-tolerance. Centrifuge training has proven to be our best device for teaching the proper AGSM, as well as providing the opportunity for teaching the physiology of high-G flight and an awareness of the factors that affect an aircrew's G-tolerance from day to day.

1.1.1. Centrifuge training consists of initial acceleration training between the primary (T-6/T-37/T34) and advanced (T-38) phases in Specialized Undergraduate Pilot Training (SUPT) and Euro-NATO Joint Jet Pilot training (ENJJPT). Qualification training takes place before introduction to fighter fundamentals (IFF) and is required for Sustained High G Aircraft (SHGA) aircrew that did not previously complete this training. In addition, refresher centrifuge training is required for all former SHGA aircrew who are either returning from 3-plus years non-flying or who are converting from a non-SHGA to a SHGA or higher-G SHGA. Commander-directed training is also available to address specific technique problems.

1.1.2. There is a 12-hour, automatic duty-not-including-flying (DNIF) period following any centrifuge training for individuals flying as primary aircraft crewmembers due to fatigue and residual motion sickness.

1.1.3. The purpose of centrifuge training is to enhance combat capability and safety by optimizing aircrew defense against GLOC through the following methods:

1.1.3.1. Increase aircrew awareness of the potentially incapacitating effects of GLOC.

1.1.3.2. Train and evaluate aircrew on a properly performed AGSM in a controlled environment.

1.1.3.3. Address strategies to improve aircrew performance under G-stress through the proper fit and use of protective equipment, the importance of maintaining fitness for the G-environment, proper nutrition, rest, hydration, and situational awareness.

1.1.3.4. Identify aircrew with low G-tolerance and poor AGSM skill performance.

1.2. Formal Training Prerequisite. Attendance of the appropriate centrifuge training program is a prerequisite for entry into all post-SUPT high-G aircraft formal training unit (FTU) courses. Foreign aircrews returning to their home country following formal training are exempt from this requirement. Centrifuge training is listed as ACC course number 30-30-30.

1.3. Explanation of Terms and Abbreviations:

1.3.1. G-Awareness Training. A comprehensive program ensures optimum G-awareness training of HGA aircrew. It consists of physiological and operational training on G-

awareness, centrifuge training, and an ongoing continuation training program. This instruction addresses only the centrifuge training program. For information regarding the physiological aspects of high-G operations, see AFPAM 11-419. For information regarding continuation training requirements, see AFI 11-2F-16V1, AFI 11-2F-15V1, AFI 11-2F-15EV1, AFI 11-2A/OA-10V1, and AFI 11-2T/AT-38V1, AFI 11-2T-6V1, AFI 11-2F-117V1, AFI 11-F/A-22V1 and AFI 11-2T-37 V1.

1.3.2. Active Sustained High G Aircraft (SHGA) aircrew. Any pilot, weapons system officer, flight surgeon, aerospace physiologist, student pilot or navigator in the fighter pipeline, or other rated aircrew/operational support flyer assigned to an active flying billet or performing unrestricted flight in a SHGA. The provisions of this instruction apply to all active SHGA aircrew and operational support flyers participating in unrestricted SHGA flights. Flight test engineers, combat camera, and aerial photographers are not required to take centrifuge training.

1.3.3. Anti-G Straining Maneuver (AGSM). The AGSM is performed by:

1.3.3.1. Isometric muscle tensing with particular emphasis on the legs, buttocks and abdominal muscles sustained throughout exposure to G forces.

1.3.3.2. Maintenance of adequate intrathoracic pressure by holding a preparatory breath, against a closed glottis for 3-second cycles, followed by rapid air exchanges. Repeat until return to baseline G.

1.3.3.3. Timing the application of the AGSM to begin just prior to G-onset and basing the intensity of the AGSM on the achieved G-level.

1.3.4. Authorized Centrifuge Training Facilities.

1.3.4.1. Facilities for USAF SHGA aircrew are:

1.3.4.1.1. Physiological Training Center, Holloman AFB, NM.

1.3.4.1.2. Brooks City-Base, Texas is an authorized centrifuge training facility for USAFSAM formal course students, including trainees in the Aerospace Medicine Primary (AMP/flight surgeon) Course, the Aerospace Physiology Officer Course and the Aerospace Physiology technician courses, as well as AETC Pilot Instructor Training (PIT) students.

1.3.4.1.3. Naval Air Station Lemoore, CA is an authorized training facility for USAF SHGA aircrew, provided that training is conducted by an authorized Holloman AFB-qualified Aerospace Physiologist. Centrifuge profiles must be in compliance with this instruction.

1.3.4.2. Foreign aircrew flying USAF trainer or fighter aircraft in exchange or student status may obtain centrifuge training from the following countries: Netherlands, Germany, Singapore, Taiwan, and Turkey, provided the training received has met USAF standards as identified in this instruction. Verification of successful completion of training and profiles completed will need to be provided to local Aerospace Physiology resources for approval and documentation on AF Form 702, *Individual Physiological Training Record*.

1.3.4.2.1. Initial/qualification training conducted at any other location will be verified by a Holloman AFB aerospace physiologist on a case-by-case basis.

1.3.4.2.2. Other US military service aircrew flying USAF trainer or fighter aircraft on exchange status must complete the required USAF centrifuge training as outlined in this instruction.

1.3.5. High-G Aircraft (HGA). Aircraft capable of generating a G-loading in excess of 4.0G. This definition is further divided into the following two categories:

1.3.5.1. Sustained High-G Aircraft (SHGA). Capable of rapid G-onset rates (greater than 3.0G/sec) and sustained (greater than 5 seconds) G-loading of greater than 6.0 G. Current aircraft which meet this definition are the A/O/A-10, T/AT-38, AV-8, F-4F, F-5, F-14, F-15, F-16, F/A-18, and F/A-22.

1.3.5.1.1. Aircrew that use the T-38 aircraft for landing currency only do not require centrifuge training. ACC T-38 IPs are required to check out other pilots on their AGSM and are required appropriate centrifuge training. Pilots current and qualified in the centrifuge do not require additional training at the local base.

1.3.5.1.2. Aircrews that use the T-38 for the Companion Trainer Program do not require centrifuge training as long as maneuvering is limited to less than 6.0G. These aircrew are required to attend AGSM academic training conducted by a qualified aerospace physiologist and must be evaluated in the aircraft by a qualified T-38 instructor pilot on AGSM performance. Aircrew identified as needing additional training will be required to complete commander-directed training under the provisions of [Chapter 6](#).

1.3.5.2. Non-Sustained High-G Aircraft (non-SHGA). All other HGA that do not meet the SHGA definition.

1.3.6. Profiles. A profile is one run on the centrifuge training device from start (idle) to stop (return to idle or stop). Gradual onset rate is 1/10th G per second, moderate onset rate is 1-3 Gs per second, and rapid onset rate is 6 Gs per second.

1.3.7. Forms used in centrifuge training.

1.3.7.1. AF Form 702, Individual Physiological Training Record. This form tracks all physiological and centrifuge training and is maintained in the aircrew's flight records.

1.3.7.2. AF Form 4293, Student Activity Record. This forms lists the centrifuge profiles completed, the evaluation of student performance, and recommended AGSM and G-awareness improvements. This form is the official debrief to the student of their performance during centrifuge training and, in order to maintain the integrity of this process, cannot be reproduced without the student being present. Students having completed centrifuge training must ensure the AF Form 4293 goes into their flying training grade book upon return from centrifuge training.

1.3.8. Experienced Rated Officer. For the purposes of this instruction only, an experienced rated officer is defined as a rated officer who:

1.3.8.1. Has logged greater than 1,000 hours in SHGA.

1.3.8.2. This does not include first assignment instructor pilots (FAIP) and aircrews that use the T-38 for the CTP and are exempt from training under paragraph [1.3.5.1.2](#).

1.3.9. Failure.

1.3.9.1. First attempt failure is an individual who fails to meet standards in accordance with [Chapter 3](#), [Chapter 4](#), or [Chapter 5](#).

1.3.9.2. Second attempt failure is an individual who returns within 60 – 180 days and does not meet standards.

1.4. Scheduling.

1.4.1. Holloman AFB, NM. The 49th Physiological Training Center, 49 ADOS/SGGT, Holloman AFB, NM, will publish and distribute an annual centrifuge schedule to ACC/DPPT, the Air Force Personnel Center (AFPC)/DPAOT, and all Undergraduate Flying Training Bases. Qualification training quotas are filled by AFPC based on fighter pipeline training requirements. For all other aircrew requiring centrifuge training, contact the Physiological Training Center directly at DSN 572-5760 to reserve training slots.

1.4.2. Randolph AFB, Texas. The 12th Physiological Training Flight, 12 ADS/SGGT, Randolph AFB, TX schedules all Pilot Instructor Training (PIT) students for centrifuge training at Brooks City-Base, Texas. Contact the 12th Physiological Training Flight at DSN 487-4931.

1.4.3. Medical Evaluation Centrifuge Exposures. All Medical Evaluations requiring centrifuge exposure must be scheduled and performed at Brooks City-Base, Texas. Flight Surgeon of record must schedule this evaluation directly with Aeromedical Consult Services (ACS) at DSN 240-6913.

1.4.4. Foreign Military Service training will be scheduled through the respective country managers at the Air Force Security Assistance Training Squadron, Randolph AFB, Texas.

1.4.5. Required Documentation.

1.4.5.1. All students must bring a current AF Form 1042, Medical Recommendation For Flying or Special Operational Duty, or service/country equivalent, indicating individual is medically cleared by a qualified flight surgeon or Aeromedical Examiner. If students are not medically cleared for flight or special operational duty, they will not be allowed to participate in centrifuge training.

1.4.5.2. All students must bring the Original AF Form 702, for documentation. Service/Country equivalent will suffice; however, an AF Form 702 will be generated as documentation of their completed training.

1.5. Grading Criteria. The following grading criteria will be utilized by the Aerospace Physiologist evaluating the student's performance. All students must achieve a grade of 2 or better in order to pass FTU entry requirements. AF Form 4293 will be noted with this grading and will be used as part of the debrief process for each student.

1.5.1. "0" – Failure. Failed; AGSM performance indicates a significant lack of muscular strength, endurance, technical ability and/or knowledge.

1.5.2. “1” – Marginal. AGSM performance needs continued assistance to correct technical errors. The trainee is expected to develop AGSM skill and proficiency with continued practice at centrifuge training facility. Trainee will remain no longer than 3 working days past initial training date to complete passing criteria.

1.5.3. “2” – Average. Passed; AGSM performance has not been mastered fully. Trainee makes minor AGSM performance errors that impact AGSM technique but recognizes and corrects them.

1.5.4. “3” – Excellent. Passed; AGSM performance is correct, efficient, and skillful. Trainee makes only minor AGSM performance errors that do not impact overall AGSM effectiveness.

1.5.5. “4” – Outstanding. Passed; AGSM performance and G tolerance reflect full mastery of the AGSM.

1.6. Changes. Forward recommendations for changes through Stan Eval channels to the MAJCOM/SG or ANG/SG to the office of primary responsibility (OPR) on an AF Form 847, *Recommendation for Change of Publication (Flight Publication)*. AFMSA/SGPA will staff and coordinate all changes to this instruction. The MAJCOM/DO is the approval authority for changes to the MAJCOM supplements.

1.7. Waivers. Waivers to this instruction are not authorized beyond those discussed within [Chapter 4](#) and [Chapter 5](#) of this instruction.

Chapter 2

INITIAL TRAINING (JSUPT AND ENJJPT)

2.1. Overview. Initial Acceleration Training is a one-time requirement for all active SHGA aircrew. Pipeline student pilots will receive this training between the primary and advanced phases of Specialized Undergraduate Pilot Training (SUPT) or Euro-NATO Joint Jet Pilot Training (ENJJPT). Pipeline F-15E WSOs will receive this training after completion of CSO training and prior to Introduction to Fighter Fundamentals (IFF). Aircrew who have successfully completed Initial Training have met the centrifuge requirements for entry into the A-10 or F-15E FTU.

2.2. DELETED.

2.3. Requirements. Completion of all training and centrifuge profiles prescribed by this section is required. Exception: Former F-15E WSOs who have previously passed 7.5 G Qualification Training or Initial Training, and are now a student in Undergraduate Pilot Training are not required to complete Initial Training a second time. Training consists of the following:

2.4. Academic Instruction. Platform academic instruction covering the physiological effects of acceleration forces, characteristics of GLOC, techniques of an effective AGSM, mishap lessons learned, and protection offered by anti-G systems. Instructors will also accomplish an interactive discussion on the impact of physical conditioning, lifestyle, proper nutrition, and situational awareness on individual G-tolerance and on the effectiveness of the AGSM.

2.5. Four Centrifuge Profiles. All aircrew will train in the 13-degree (“upright”) seat with center stick and will accomplish the following training profiles in the order listed:

2.5.1. First Profile. Gradual-onset run (0.1 G/s) to peripheral vision loss (approximately 60 degrees vision loss). The purpose of this profile is to familiarize the aircrew with G-induced vision loss in a controlled environment, and determine the aircrew member’s resting G-tolerance for the training day. The anti-G suit will be worn but not inflated during this profile.

2.5.2. Second Profile. G-X (6.0 G/s). The purpose of this profile is to practice the AGSM during the G-Warm Up and G-Awareness Exercises that compose the G-X for the T-38C. This profile consists of 4 G for 15 seconds, followed by 15 seconds at idle, then 5 G for 30 seconds to represent the 90 and 180 degree turns of the T-38C G-X. The anti-G suit will be worn and inflated during this profile.

2.5.3. Third Profile. Rapid-onset run (6.0 G/s) to 7.5 G for 15 seconds. The purpose of this profile is to establish the proper performance of the AGSM at the G-level prescribed for the T-38C and to establish aircrew confidence in their ability to operate in the high-G environment.

2.5.4. Fourth Profile. Simulated air combat maneuvers; the aircrew tracks a target through a series of maneuvers at a minimum of 3 G and a maximum of 7 G. Automatic target tracking profile will be used for all rear cockpit aircrew. The purpose of this profile is to perform the AGSM in a dynamic high-G flight environment while fatigued.

2.5.5. Debrief. Students will receive a short debrief following each profile, with emphasis on improving the aircrew's AGSM performance for the next profile. After the centrifuge training session, each student will receive a thorough debrief including a review of the aircrew's videotape, written review of AGSM performance documented on AF Form 4293, and, if warranted, a written recommendation to the aircrew for a tailored conditioning program designed to increase the individual's G-tolerance.

2.6. Non-completion of Training. If training is incomplete because of factors beyond the aircrew's control, notification is made within 24 hours to student's commander, who will reschedule the aircrew for another class.

2.7. Documentation. An evaluation regarding AGSM performance will be recorded on AF Form 4293 and will be given to the student for placement in their UFT grade book for IP review. A qualified AOP will document successful completion of training on AF Form 702. Document training as "Initial Centrifuge."

2.7.1. Students meeting passing criteria will also have training documented in the Remarks section of AF Form 702 as "AFI 11-404 Initial Acceleration Training Complete (7.5 Gz)."

2.8. First Attempt Failure.

2.8.1. Notification. The aerospace physiologist of record will notify the aircrew's commander in writing of the failure and provide a copy of the aircrew's training report and recommendations for improvement. HQ AFPC/DPAOT must be notified within 24 hours of F-15E WSO training failures.

2.8.2. Grounding. Aircrews are not medically grounded following a failed first attempt at Initial Acceleration Training beyond the 12-hour automatic DNIF.

2.8.3. Restrictions. There is no automatic restriction following first-attempt failure of Initial Acceleration Training. Following review of the centrifuge training record and consultation with the flight surgeon and the aerospace physiologist of record, the squadron commander may restrict pilot aircrews from solo high-G operations until successful completion of centrifuge retraining.

2.8.4. Conditioning program. The aircrew's commander or commander-designated representative will monitor the aircrew's progress in any recommended physical conditioning program. Aircrews must be afforded sufficient opportunity (minimum three times per week) to work on their individual conditioning program. Aircrews with weight training recommendations as part of this program should seek assistance from a local aerospace physiology officer in implementing their conditioning program.

2.8.5. Second Attempt Training. A second attempt at Initial Training will be scheduled anytime between 60 and 180 days following the aircrew's first attempt failure at Initial Acceleration Training, or earlier with OG/CC permission. Aircrews are grounded on the 181st day following their first attempt until satisfactory completion of retraining or MAJCOM or ANG waiver is approved. The second attempt Initial Acceleration Training program is only conducted at authorized centrifuge training facilities. A qualified aerospace physiologist will conduct or monitor the complete retraining program. This program is 1-3 days in duration and consists of the following:

2.8.5.1. Review of videotape and training report from the first training attempt.

2.8.5.2. Review of progress made during individual conditioning program.

2.8.5.3. Academics tailored to the individual's original problem areas.

2.8.5.4. Centrifuge training profiles tailored to the individual's needs. The purpose of these profiles is to work on the aircrew's specific problem areas as identified in the first attempt at Initial Acceleration Training. Additional warm-up profiles will be provided as necessary to prepare the aircrew for completion of the Initial Acceleration Training profiles. Aircrew must show consistent performance of a proper AGSM in order to complete the profiles. Once the aircrew satisfactorily completes these profiles, the AF Form 702 will be signed and no further training is necessary. The aerospace physiologist of record will generate a letter to the aircrew's commander detailing AGSM performance during the second attempt session.

2.9. Second Attempt Failure.

2.9.1. Notification. The aerospace physiologist of record will notify the aircrew's commander in writing and provide information copies to the MAJCOM/A3, MAJCOM SGP (or NGB/A3, NGB/SGP) of the aircrew's failure to complete retraining. Notification must include the reason(s) for the failure and should include any recommendations that might be beneficial in determining the future training ability of the aircrew. In addition, AFPC/DPAOT must be notified within 24 hours of F-15E WSO's failure to complete retraining.

2.9.2. Grounding and medical evaluation. Aircrew members are medically grounded pending completion of a medical evaluation by a qualified flight surgeon. The purpose of this evaluation is to determine if there is any underlying pathology that caused or contributed to the aircrew's failure to complete training. Flight Surgeon of record will provide the results of this evaluation to the unit commander and the MAJCOM/SGP or ANG/SGP. Following satisfactory completion of treatment (if underlying pathology was a factor), recommendation by the attending flight surgeon, and concurrence by the MAJCOM/SGP or ANG/SGP, the aircrew may reattempt Initial Acceleration Training without prejudice. If no underlying pathology was discovered, then the remaining procedures in this section will be implemented.

2.9.3. Student Disposition.

2.9.3.1. UPT students that fail a second attempt at Initial Training will be re-tracked out of the fighter/bomber pipeline.

2.9.3.2. F-15E WSOs, and all other non-UPT aircrew, who have failed a second attempt at Initial Acceleration Training will undergo an Operational Review to determine their final disposition.

2.9.3.3. Operational Review. The aircrew's OG/CC or equivalent will conduct a unit-level operational review. The purpose of this review is to provide a recommendation to the MAJCOM/A3 or ANG/A3 as to whether the aircrew should receive a waiver to continue in their weapons system. The OG/CC must consider the aircrew's flying skill and experience, and then determine the aircrew's potential to develop into a successful SHGA aviator.

2.10. Waiver Procedures. Waiver requests must be by name and submitted in writing with appropriate justification through the NAF/A3 to the MAJCOM/A3. NAF will screen requests and recommend concurrence or non-concurrence to the MAJCOM/A3. All requests for waivers for the ANG will be submitted directly to the NGB/A3. The MAJCOM/A3 or NGB/A3 is the final waiver authority.

Chapter 3

DELETED

Chapter 4

QUALIFICATION TRAINING

4.1. Overview. Qualification training is a one-time requirement for all active SHGA aircrews. Experienced rated officers (as defined in this instruction) will be trained to the refresher level described in [Chapter 5](#). Aircrew who fail their first attempt at qualification training will attend the retraining program between 60-180 days from first failure.

4.2. Requirements. Completion of all training and centrifuge profiles prescribed by this section is required. Exception: A-10 FTU entry qualification centrifuge (ACC course 30-30-30) requirement has been eliminated. Successful completion of initial acceleration training to 7.5 Gs as part of AETC syllabus P-V4A-A (T-38C SUPT) satisfies the A-10 or F-15E FTU entry requirements.”

4.2.1. Platform Academic Instruction. Minimum 2 hours of platform academic instruction covering the physiological effects of acceleration forces, characteristics of GLOC, techniques of an effective AGSM, and protection offered by current and future anti-G systems. Also included will be an interactive discussion of the impact of physical conditioning, lifestyle, proper nutrition, and situational awareness on individual G-tolerance and on the effectiveness of the AGSM.

4.2.2. Five Centrifuge Profiles. F-16 candidates will train in the 30-degree reclined seat. All other aircrews will train in the 13-degree upright seat. The maximum G identified in each profile will be adjusted for MDS specific requirements. All profiles will be videotaped. The following are the training profiles and will be accomplished in the order listed:

4.2.2.1. First profile. Gradual onset (0.1 G/s) to peripheral vision loss (approximately 60 degrees vision loss). The purpose of this profile is to establish the student’s resting G-tolerance for that day in order to apply the appropriate AGSM intensity to the high-G profiles that follow. The anti-G suit will be worn but not inflated during this profile.

4.2.2.2. Second profile. Rapid onset (6 G/s) run to 6 G for 30 seconds. The purpose of this run is to practice the proper AGSM at reduced G-levels. The anti-G suit is on for this and all subsequent runs.

4.2.2.3. Third profile. Rapid onset (6 G/s) run for 15 seconds to 8.5 G for F-15 C/D, 9 G for F-16 and F/A-22, and 7.5 G for all other MDS. The purpose of this profile is to establish the proper performance of the AGSM at the G-level prescribed for the MDS.

4.2.2.4. Fourth profile. Rapid onset (6 G/s) run for 10 seconds to 7 G for F-16 and F/A-22 and 6 G for all other MDS. This profile will be completed in the “check 6” position.

4.2.2.5. Fifth profile. Simulated air combat maneuver. The aircrew tracks a target through a series of maneuvers at a 3 G minimum with the maximum G tailored to the capabilities of the aircrew’s gaining aircraft, i.e., 9 G for F-16 and F/A-22, 8 G for F-15 C/D/E, and 7 G for all other MDS. An automatic target-tracking profile will be used for all rear cockpit aircrew. The purpose of this profile is to evaluate AGSM performance and G/AGSM situational awareness while procedurally tasked.

4.2.3. Debrief. Aircrews will receive a thorough debrief following each profile, with emphasis on improving each aircrew’s AGSM. The overall debrief will include a review of

the aircrew's videotape with emphasis on the AGSM, written review of AGSM performance documented on AF Form 4293, and, if warranted, a written recommendation to the aircrew for a tailored conditioning program designed to increase the individual's potential G-tolerance.

4.3. Noncompletion of Training. If training is incomplete because of factors beyond the aircrew's control, notification is made within 24 hrs to AFPC/DPAOT who will reschedule the aircrew for another class. Non-completion because of aircrew performance is documented by the Aerospace Physiologist who monitored the individual's training.

4.3.1. First Attempt Failure:

4.3.1.1. Notification. The aerospace physiologist of record will notify the aircrew's commander in writing of the failure and provide a copy of the aircrew's training report and the recommendations for improvement discussed during the debrief. HQ AFPC/DPAOT must be notified within 24 hours of fighter pipeline training failures. The aerospace physiologist of record may recommend flight restrictions for pilots whose centrifuge performance indicates a significantly higher propensity for G-induced problems. MAJCOM or ANGRC notification for first time failures is not required.

4.3.1.2. Grounding. Aircrews are not medically grounded following their first attempt at initial training beyond the 12-hour automatic DNIF.

4.3.1.3. Restrictions. There is no automatic restriction following first-attempt failure. Following review of the centrifuge training record and consultation with the flight surgeon and the aerospace physiologist of record, the squadron commander may restrict pilot aircrews from solo high-G operations until successful completion of centrifuge retraining.

4.3.1.4. Conditioning program. The aircrew's commander or commander-designated representative will monitor the aircrew's progress in any recommended physical conditioning program. Aircrews must be afforded sufficient opportunity (minimum three times per week) to work on their individual conditioning program. Aircrews that have weight training recommended as part of this program should follow guidance in AFPAM 11-419 and seek assistance from a local aerospace physiology officer in implementing their conditioning program.

4.3.1.5. Scheduling centrifuge retraining. Retraining will be scheduled for 60-180 days following the aircrew's qualification training. AFPC/DPAOT will reassign a Training Line Number for the aircrew member to attend retraining. Travel Orders will be processed by the student's MPF Formal Training Section. The commander and flight surgeon will review the aircrew's progress in the conditioning program prior to scheduling retraining. Aircrews are grounded on the 181st day following their first attempt until satisfactory completion of retraining or MAJCOM/DO or ANG/XO waiver is approved.

4.3.1.6. Retraining program. The retraining program is only conducted at authorized centrifuge training facilities. A qualified aerospace physiologist will conduct or monitor the complete retraining program. This program is 3 days in duration and consists of the following:

4.3.1.6.1. Review of videotape and training report from the first training attempt.

4.3.1.6.2. Review of progress made during individual conditioning program.

4.3.1.6.3. Academics tailored to the individual's original problem areas.

4.3.1.6.4. Centrifuge training profiles tailored to the individual's needs. The purpose of these profiles is to work on the aircrew's specific problem areas as identified in qualification training. Additional warm-up profiles will be provided as necessary to prepare the aircrew for completion of the qualification training profiles. The aircrew must show consistent performance of a proper AGSM in order to complete the profiles. Once the aircrew satisfactorily completes these profiles, the AF Form 702 will be signed and no further training is necessary. The aerospace physiologist of record will generate a letter to the aircrew's commander detailing AGSM performance during the retraining session.

4.3.2. Second Attempt Failure: *(aircrew fails retraining program)*

4.3.2.1. Notification. The centrifuge facility chief will notify the aircrew's commander in writing and provide an information copy to the MAJCOM/DOT/SGP or ANG/XOT/SGP of the aircrew's failure to complete retraining. Notification must include the reasons for the failure and should include any recommendations that might be beneficial in determining the future training ability of the aircrew. In addition, AFPC/DPAOT will be notified within 24 hours of the aircrew's failure to complete retraining.

4.3.2.2. Grounding and medical evaluation. Aircrew members are medically grounded pending completion of a medical evaluation by a qualified flight surgeon. The purpose of this evaluation is to determine if there is any underlying pathology that caused or contributed to the aircrew's failure to complete training. Flight Surgeon of record will provide the results of this evaluation to the unit commander and the MAJCOM/SGP or ANG/SGP. Following satisfactory completion of treatment (if underlying pathology was a factor), recommendation by the attending flight surgeon, and concurrence by the MAJCOM/SGP or ANG/SGP, the aircrew may reattempt qualification centrifuge training without prejudice. If no underlying pathology was discovered, then the remaining procedures in this section will be implemented.

4.3.2.3. Restrictions. Following successful completion of a medical evaluation, aircrews may, with commander approval, resume limited flying duties. Pilots will not fly solo or as pilot-in-command, instructor, or flight examiner until completion of an operational review and approval of a MAJCOM/DO or ANG/XO waiver.

4.3.2.4. Operational review. The aircrew's operations group commander or equivalent will conduct a unit-level operational review. The purpose of this review is to provide a recommendation to the MAJCOM/DO or ANG/XO as to whether the aircrew should receive a waiver to continue in their weapons system. The operations group commander must consider the aircrew's flying skill and experience, and then determine the aircrew's potential to develop into a successful high-G aviator. If the aircrew is converting from a non-SHGA to a SHGA, or is new to HGA aviation, then the operations group commander will recommend either retaining the aircrew in a lower G system or approval to continue

in SHGA conversion. The operations group commander's recommendation will be sent to the MAJCOM/DO or ANG/XO within 60 days of the aircrew's failure of retraining.

4.3.2.4.1. If recommended to return in lower-G SHGA the aircrew must return to the centrifuge training facility and complete the qualifying profile for the new MDS.

4.3.2.5. MAJCOM/ANG review. The MAJCOM/SGP or ANG/SGP will review the centrifuge training reports and recommendations and the medical evaluation report, and they may review the aircrew's centrifuge training videotapes (if desired). Based on the medical and physiological review, the MAJCOM/SGP or ANG/SGP will provide a recommendation to the MAJCOM/DOT or ANG/XOT as to the aircrew's potential to tolerate the high-G environment. The MAJCOM/DOT or ANG/XOT will review the operations group commander and MAJCOM/SGP or ANG/SGP recommendations and prepare a consolidated position to the MAJCOM/DO or ANG/XO. The MAJCOM/DO or ANG/XO is the final authority in determining whether the aircrew is retained in their weapon system, whether approved to continue conversion, or if the aircrew should be reassigned to a low-G weapon system.

4.4. Waiver Procedures. Waiver requests must be by name and submitted in writing with appropriate justification through the NAF/DO to the MAJCOM/DO. NAF will screen requests and recommend concurrence or nonoccurrence to the MAJCOM/DO. All requests for waivers for the ANG will be submitted directly to the ANG/XO. The MAJCOM/DO or ANG/XO is the final waiver authority.

4.4.1. Waivers to qualification training will be considered for the following circumstances:

4.4.1.1. Unit is converting from non-SHGA or a lower-G SHGA to SHGA and aircrew will not convert.

4.4.1.2. Aircrew is separating from the Air Force or retiring within 90 days (6 months for ANG aircrew) of when the aircrew would otherwise be required to attend training.

4.4.1.3. Aircrew failed qualification and retraining, but was recommended to continue in SHGA (paragraph 4.3.2.5). An approved waiver to the training requirement also constitutes a waiver to the formal course entry prerequisite for aircrew members who are enrolled in or en route to a formal training course.

4.5. Documentation. A qualified aerospace physiologist will document completion of training on AF Form 702 will reflect MDS specific qualification, "AFI 11-404 Qualification Centrifuge Training Complete, 9 Gz" (F-16, F/A-22), "AFI 11-404 Qualification Centrifuge Training Complete, 8.5 Gz" (F-15C), or "AFI 11-404 Qualification Centrifuge Training Complete, 7.5 Gz" (all other SHGA).

4.5.1. Successful completion of training will be documented on the appropriate student grade book form.

Chapter 5

REFRESHER TRAINING

5.1. Overview. Refresher training is designed for aircrews who are being reassigned to high-G aircraft following a non-flying assignment or who are converting from a non-SHGA or lower-G SHGA to a SHGA. Refresher training requires aircrew to successfully complete training at the MDS G level ([Chapter 4](#)).

5.2. Applicability:

5.2.1. All experienced rated officers who have not previously completed qualification training. “Exception: Experienced fighter aircrews previously centrifuge qualified at 7.5 G or above have solid foundations in G-awareness, flight discipline and ORM for the employment envelope and will not require refresher training if returning to the T-38, A-10 or F-15E aircraft.”

5.2.2. Aircrews returning to SHGA from 3 or more years in a non-flying position or converting to a SHGA from 3 years in a non-SHGA. The 3 years are counted from the last flight as an assigned active high-G aircrew in a SHGA to formal course entry date (report not-later-than for aircrews who won’t attend a formal course en route to their gaining unit).

5.2.3. Aircrew upgrading from a SHGA to a higher-G SHGA (i.e. aircrew converting from A-10/T-38/F-15E to F-15C/D/F-16/F/A-22) must accomplish centrifuge refresher training to the MDS qualifying G-level.

5.2.3.1. Aircrew transitioning from the F-15C/D to the F-16 or F/A-22 do not require centrifuge training unless required by [5.2.1](#), [5.2.2](#), [5.2.3](#), or [5.2.4](#).

5.2.4. Aircrews on MAJCOM and ANGRC waivers for failure of qualification training (paragraph [4.4.1.3](#)) require refresher training every year or until aircrew passes MDS specific qualifying profile. Once qualification training profiles are successfully completed, the aircrew’s AF Form 702 will be documented accordingly; the waiver will be rescinded; and no further refresher training will be required (unless directed by paragraph [5.2.3](#) or [Chapter 6](#)).

5.3. Requirements. Completion of all training prescribed by this section is required; except, in the event of an equipment malfunction, training may be completed without profile 4. Training consists of the following:

5.3.1. Platform Academic Instruction. Minimum 2 hours of platform academic instruction covering the physiological effects of acceleration forces, characteristics of GLOC, techniques of an effective AGSM, mishap lessons learned, and protection offered by current and future anti-G systems. Also, included will be an interactive discussion of the impact of physical conditioning, lifestyle, proper nutrition, and situational awareness on individual G-tolerance and on the effectiveness of the AGSM.

5.3.2. Four Centrifuge Profiles. Aircrews currently flying or converting to the F-16 will train in the 30-degree reclined seat. All other aircrews will train in the 13-degree up-right seat. All profiles will be videotaped. The following are refresher training profiles and will be accomplished in the order listed:

5.3.2.1. First profile. Gradual-onset run (0.1 G/s) to peripheral vision loss (approximately 60 degrees vision loss). The purpose of this profile is to establish the student's resting G-tolerance for that day in order to apply the appropriate AGSM intensity to the high-G profiles that follow. The anti-G suit will be worn but not inflated during this profile.

5.3.2.2. Second profile. Rapid-onset run to 6 G for 10 seconds during "check 6" position. The anti-G suit is connected for this and all subsequent runs.

5.3.2.3. Third profile. Rapid-onset run to MDS specified qualification profile (paragraph 4.2.2.3) for 15 seconds. The purpose of this run is to demonstrate the proper AGSM.

5.3.2.4. Fourth profile. Simulated air combat maneuver; the aircrew tracks a target through a series of maneuvers at a minimum of 3 G and a maximum of 7 G (8 G for F-16, F/A-22). Automatic target tracking profile will be used for all rear cockpit aircrew.

5.3.3. Debrief. Aircrews will receive a verbal and written debrief following each profile, with emphasis on improving the aircrew's AGSM. The overall debrief will include a review of the aircrew's videotape with emphasis on the AGSM and, if warranted, a written recommendation to the aircrew for a tailored conditioning program designed to increase the individual's potential G-tolerance. Written documentation of training debrief will be performed on the AF Form 4293.

5.4. Non-completion of Training. If training is incomplete due to factors beyond the aircrew's control, no actions are required beyond rescheduling of training. Recommendation for non-completion due to aircrew performance is made by the aerospace physiologist who monitored the individual's training. Once this recommendation is validated, the procedures in this section will be implemented.

5.4.1. Notification. The Aerospace Physiologist will notify the aircrew's commander in writing of the failure and provide a copy of the aircrew's training report and the tailored conditioning program recommended in the debrief.

5.4.2. Grounding. Aircrews are not medically grounded following refresher training beyond the 12-hour automatic DNIF.

5.4.3. Restrictions. There is no automatic restriction following failure of refresher training. Following a review of the centrifuge training record and consultation with the flight surgeon and the centrifuge facility chief, the squadron commander may restrict pilot aircrews from solo high-G operations until successful completion of an operational review.

5.4.4. Conditioning Program. The aircrew's commander or commander-designated representative will monitor the aircrew's progress in the conditioning program. The aircrew must be afforded sufficient opportunity (minimum 3 times per week) to work on their individual conditioning program. Aircrews that have weight training recommended as part of this program should seek guidance in AFPAM 11-419 and assistance from a local aerospace physiologist in establishing their program.

5.4.5. Operational Review. The aircrew's operations group commander or equivalent will conduct a unit-level operational review. The purpose of this review is to provide a recommendation to the MAJCOM/DO or ANG/XO as to whether the aircrew should receive a waiver to continue in their weapons system. The operations group commander must consider the aircrew's flying skill and experience, and then determine the aircrew's potential

to develop into a successful high-G aviator. If the aircrew is converting from a SHGA to a higher-G SHGA, or is new to SHGA aviation, then the operations group commander will recommend either retraining the aircrew in a lower G system or approval to continue in SHGA conversion. The operations group commander's recommendation will be sent to the MAJCOM/DO or ANG/XO within 60 days of the aircrew's failure of retraining.

5.4.6. MAJCOM/ANGRC review. The MAJCOM/SGP or ANG/SGP will review the centrifuge training reports and recommendations and the medical evaluation report, and they may review the aircrew's centrifuge training videotapes (if desired). Based on the medical and physiological review, the MAJCOM/SGP or ANG/SGP will provide a recommendation to the MAJCOM/DOT or ANG/XOT as to the aircrew's potential to tolerate the high-G environment. The MAJCOM/DOT or ANG/XOT will review the operations group commander and MAJCOM/SGP or ANG/SGP recommendations and prepare a consolidated position to the MAJCOM/DO or ANG/XO. The MAJCOM/DO or ANG/XO is the final authority in determining whether the aircrew is retained in their weapon system, whether approved to continue conversion, or if the aircrew should be reassigned to a low-G weapon system.

5.5. Waiver Procedures. Waiver requests must be by name and submitted in writing, with appropriate justification, through the NAF/DO to the MAJCOM/DO. The NAF will screen requests and recommend concurrence or non-concurrence to the MAJCOM/DO. All requests for waivers for the ANG will be submitted directly to the ANG/XO. The MAJCOM/DO or ANG/XO is the final waiver authority.

5.5.1. Waivers to refresher training will be considered for the following circumstances:

5.5.1.1. Experienced rated officer who was unable to complete training.

5.5.1.2. Other aircrews who attended training that was not in conjunction with conversion to a high-G aircraft.

5.5.1.3. Aircrews recommended continuing in SHGA following their operational review.

5.5.2. An approved waiver to the refresher training requirement also constitutes a waiver to the formal course entry prerequisite for aircrews that are enrolled in or en route to a formal training course.

5.5.3. Aircrews on approved refresher training waivers do not require further centrifuge training except as directed by [Chapter 6](#), Commander-Directed Acceleration Training.

5.6. Documentation. A qualified aerospace physiologist will document completion of training on AF Form 702. Documentation will reflect MDS specific qualification, "AFI 11-404 Qualification Centrifuge Training Complete, 9 Gz" (F-16, F/A-22), "AFI 11-404 Qualification Centrifuge Training Complete, 8.5 Gz" (F-15C), or "AFI 11-404 Qualification Centrifuge Training Complete, 7.5 Gz" (all other SHGA).

Chapter 6

COMMANDER-DIRECTED TRAINING

6.1. Overview. Commander-directed acceleration training (CDAT) is a tool used by an organizational commander to evaluate and improve an aircrew's performance under G. Following medical evaluation by flight surgeon and videotape review by flight supervision, flight surgeon, or aerospace physiologist, recommendation can be made for CDAT.

6.2. Applicability. Any aircrew member may return at the discretion of his or her commander following an in-flight GLOC incident or when directed to improve their performance under G. Commanders will use the evaluation from CDAT outcome to direct follow-on training. This may include, but is not limited to, continued pipeline training, further acceleration training, or removal from SHGA pipeline training. Commanders-directed course of action will be documented in the student's grade book.

6.3. Retraining program. The retraining program is only conducted at authorized centrifuge training facilities. A qualified aerospace physiologist will conduct or monitor the complete retraining program. This program is 3 days in duration and consists of the following:

6.3.1. Review of available in-flight tapes.

6.3.2. Review of individual conditioning program.

6.3.3. Analysis and review of individual AGSM performance.

6.3.4. Centrifuge training profiles tailored to the individual's needs. The purpose of these profiles is to work on the aircrew's specific problem areas. This may include training with COMBAT EDGE equipment.

6.4. Evaluation Criteria. Successful completion of CDAT is based on the following criteria:

6.4.1. T-37/T-38/T-6 training phase requires the individual to successfully complete the PIT profiles identified in [Chapter 3](#).

6.4.2. All other evaluations require the individual to meet the standards identified in [Chapter 4](#).

6.5. Notification. The aerospace physiologist will notify the aircrew's commander in writing of the aircrew's training and progress. These may include recommendations of flight restrictions for pilots whose centrifuge performance indicates a significantly higher propensity for G-induced problems.

Chapter 7

REPORTING

7.1. Overview. Completion of centrifuge training is documented on the AF Form 702 as described in this instruction. Notification of non-completion is also accomplished according to this instruction. The centrifuge training facility will provide an end-of-calendar year report to its MAJCOM/DO/SG and AFMSA/SGPA which delineates the following (with anonymity):

7.1.1. Number of persons (by aircrew mission design series (MDS) and crew position) who attended training by training program.

7.1.2. Number of failures and rate by training program, MDS, and crew position. Consolidate reasons for failures and provide separate list with rates (e.g. GLOC--10 percent, inadequate AGSM--75 percent, poor physical condition--20 percent, etc.).

7.1.3. Injuries or medical problems, in association with training, by aircrew MDS.

7.1.4. Synopsis of critique comments. Only include comments directed at the overall program or policies. Comments on the facility or its personnel need not be sent forward.

7.1.5. Specific comments or recommendations by the facility chief regarding program policy or procedures.

7.2. Videotape Disposition. The videotapes of aircrew centrifuge training are controlled items. The centrifuge training facility will maintain original videotapes according to AFMAN 37-139, *Records Disposition Schedule*. The release of student videotapes will only be made to authorized personnel with permission from the MAJCOM/SGP or ANG/SGP. The centrifuge facility will copy only the training profiles for the individual aircrew requested by the MAJCOM/SGP or ANG/SGP. This copy will be labeled "for official use only" and afforded protection from unauthorized disclosure.

7.3. Individual Records. Flying units will track qualification centrifuge training in Aviation Resource Management System (ARMS) and in individual flight records IAW AFI 11-421, *Aviation Resource Management*. Aircrew records should be screened annually to determine when the aircrew, if any, on waivers will require refresher training. Units will also develop a method to track refresher training attendance and completion.

7.3.1. The centrifuge training facility will maintain individual aircrew training records according to AFI 37-139. This will serve as a back-up to flying unit records.

7.3.2. The training reports maintained by the centrifuge facility may be released to the aircrew's commander, MAJCOM/DOT, or MAJCOM/SGP (ANG/XOT/SGP for ANG aircrew). Requests for release of individual training reports to other agencies must be approved by the MAJCOM/DOT or ANG/XOT. These reports are "for official use only" and afforded protection from unauthorized disclosure.

Chapter 8

CENTRIFUGE TRAINING AND OPERATIONS

8.1. Application. This chapter applies to aircrew centrifuge training and operations conducted at the Physiological Training Center (PTC), Holloman AFB, NM, USAFSAM formal courses including Aerospace Medicine Primary and Aerospace Physiology Officer Training conducted by the AFRL staff at Brooks City-Base, Texas, and Pilot Instructor Training at Randolph AFB, Texas who are trained in the AFRL Centrifuge at Brooks City-Base, Texas.

8.2. Crew Composition and Qualifications:

8.2.1. The minimum centrifuge training crew will consist of an Aerospace Physiology Officer (APO), lecturer, operator, and crew chief. A flight surgeon (FS) will be notified of centrifuge operations and placed on call in conjunction with emergency medicine notification. The on-call FS will be notified if an emergency or non-routine medical treatment is required. Response time for FS to arrive at centrifuge training center will not exceed five minutes. Flight Medicine or appropriate emergency medicine transport team must provide patient transport to medical treatment facility.

8.2.2. The commanders of the centrifuge training facilities will establish qualification criteria and procedures for all members of a centrifuge crew with the exception of the FS. Detailed procedures will be found in centrifuge training facility Operating Instructions. Qualification documentation will be maintained as part of the training facility instructor folder. To ensure consistency of training, qualification programs for centrifuge APOs developed by other authorized USAF centrifuge facilities will be reviewed by the Holloman AFB PTC Flight Commander.

8.2.3. The MTF Chief of Aerospace Medicine (SGP) will establish qualification criteria and procedures for MTF flight surgeons.

8.2.4. All centrifuge crew members will maintain currency in responding to medical emergencies in the centrifuge. Commanders of centrifuge facilities will direct emergency reactor training on a quarterly basis. At least two training sessions per year will involve response from the FS: These training sessions will be locally scheduled and documented by each centrifuge training facility. Each of the emergencies below will be exercised at least once per year.

8.2.4.1. Unconscious/Unresponsive student. Emergency notification will be activated and flight surgeon will participate.

8.2.4.2. Suspected neck/back injury in a student: Flight surgeon will participate

8.2.4.3. Mechanical/Physical Emergency including fire, electrical, mechanical failure or weather.

8.3. Documentation of Centrifuge Training. Only a qualified Aerospace Physiologist may document centrifuge training on AF Form 702, Individual Physiological Training Record. If the qualified Aerospace Physiologist is not assigned to an authorized training facility, written verification of training from aircrew member's centrifuge training facility must be obtained prior to documenting AF Form 702.

8.4. Electrocardiograph (EKG) Monitoring. Rated aircrew members (to include qualified flight surgeons), student aircrew members, and aerospace physiology personnel receiving centrifuge training will not be EKG monitored. Medical monitoring for centrifuge medical evaluations will be determined by the attending flight surgeon. Aircrew participating as research subjects may be EKG-monitored for heart rate response to extreme acceleration profiles.

8.5. Training for Other Personnel:

8.5.1. Any US Air Force, US Navy, US Army, or US Marine Corps rated aircrew member, aerospace physiologist, aerospace physiology technician, aircrew life support technician, or enlisted member of Squadron Medical Element may participate in training up to 9G. They must have taken the associated academic course and present proof of an appropriate and current USAF flight physical, or service equivalent, indicating fitness for high-G centrifuge exposure.

8.5.2. Handle approval for international military personnel through the AF Security Assistance Training Squadron, Randolph AFB, TX or through official embassy request channels.

8.5.3. Other personnel may participate in centrifuge training exposure only when a request from a United States government sponsoring agency has been approved by AFMSA/SGPA. Requests must include reason for participation, G limits to be used, and proof of USAF certification of medical fitness for centrifuge exposure.

8.6. Logistical/Fiscal Support for Fighter Aircrew Acceleration Training Program, Holloman AFB, New Mexico:

8.6.1. The logistical support for the Holloman centrifuge will be provided by a human centrifuge maintenance service contract. ACC/LG provides fiscal support for the maintenance contract of the Holloman AFB centrifuge.

8.6.2. 49th Contracting Squadron has overall responsibility for the contract. The 49th Physiological Training Center ensures proper Quality Assurance oversight of the contractor is maintained.

8.7. DELETED

GEORGE P. TAYLOR, Lt General, USAF, MC,
CFS
Surgeon General

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFPD 11-4, Aviation Service

AFI 11-403, Aerospace Physiological Training Program

AFMAN 37-139, Records Disposition Schedule

AFPAM 11-419, G-Awareness for Aircrew

AETC Syllabus P-V4A-A, Specialized Undergraduate Pilot Training (T-38), Fighter

AETC IG F-V5A-A/B-CT-IG, G-Awareness and Centrifuge Training

Prescribed Forms

AF Form 702, *Individual Physiological Training Record*

Adopted Forms

AF Form 4293, *Student Activity Record*

AF Form 1042, *Medical Recommendation For Flying or Special Operational Duty*

AF Form 847, *Recommendation for Change of Publication (Flight Publication)*

Abbreviations and Acronyms

ACC—Air Combat Command

AETC—Air Education Training Command

AFB—Air Force Base

AFMOA—Air Force Medical Operations Agency

AFPC—Air Force Personal Center

AFSAT—Air Force Security Assistance Training Squadron

AGSM—Anti-G Straining Maneuver

ANGRC—Air National Guard Recruiting Center

COMBAT EDGE—Combined Advanced Technology Enhanced Design G Ensemble

DNIF—Duties Not Including Flying

FAIP—First Assignment Instructor Pilot

FTU—Fighter Training Unit

GLOC—G-Induced Loss of Consciousness

HGA—High G Aircraft

SHGA—Sustained High G Aircraft

IFF—Introduction to Fighter Fundamentals

IP—Instructor Pilot

MAJCOM—Major Command

MDS—Mission Design Series

NAF—Numbered Air Force

OPR—Office of Primary Responsibility

PIT—Pilot Instructor Training

SUPT—Specialized Undergraduate Pilot Training

Terms

G—Any force that produces an acceleration of 32.2 FPS (FPS = Feet Per Second), which is equivalent to the acceleration produced by earth's gravity.